

IN THE CLAIMS:

Please cancel claims 5-12, 33-36, 46, 54-56, 59-71, 73, 77, 79, 84, 86-90 and 92 without prejudice.

Please amend the claims as follows:

¹ 47. (Twice Amended) An apparatus for use in carrying out a binding assay comprising:

- (a) a cell comprising one or more electrodes having binding reagents immobilized thereon so as to form one or more binding domains; and
- (b) a sonication device, structurally coupled to said cell, for sonicating the contents of said cell.

⁸ 48. (Amended) An apparatus for use in carrying out a binding assay, comprising:

- (a) a cell comprising one or more solid phase supports, said supports having binding reagents immobilized and patterned thereon into a plurality of distinct binding domains wherein at least one of said binding domains comprises binding reagents differing in specificity from at least one other binding domain; and

a sonication device, structurally coupled to said cell, for sonicating contents of said cell.

² 49. (Twice Amended) An apparatus as recited in claim ¹ 47, wherein said binding reagents are patterned on said one or more electrodes to form said one or more binding domains and at least one of said binding domains comprises binding reagents differing in specificity from at least one other binding domain.

10 ~~50~~. (Twice Amended) An apparatus for use in carrying out a binding assay, comprising:

D₁ (a) a cell comprising one or more solid phase supports, said supports having one or more binding reagents immobilized thereon forming one or more binding domains; and

(b) a sonication device, structurally coupled to said cell, for sonicating contents of said cell, wherein said one or more solid phase supports is structurally coupled, through a surface of said cell, to said sonication device for sonicating the contents of said cell.

12 ~~52~~. (Twice Amended) An apparatus as recited in claims ~~47~~¹, ~~48~~⁸ or ~~50~~¹⁰, wherein said sonication device is a piezoelectric device.

D₂ 14 ~~53~~. (Twice Amended) An apparatus for use in carrying out a binding assay, comprising:

(a) a cell;

(b) a sonication device, structurally coupled to said cell, for sonicating the contents of said cell; and

(c) one or more solid phase supports, said supports having one or more binding domains formed thereon,

wherein said sonication device is an electromagnetic actuator.

D₃ 11 ~~57~~. (Twice Amended) An apparatus as recited in claim [55] ~~50~~¹⁰, wherein said binding reagents are patterned on said solid phase [support into a plurality of distinct] supports to form said one or more binding domains and at least one of said binding domains comprises binding reagents differing in specificity from at least one other binding domain.

⁴ 58. (Amended) An apparatus as recited in claim 47, wherein said binding reagents are patterned on said one or more electrodes to form said one or more binding domains and at least one of said binding domains comprises binding reagents differing in specificity from at least one other binding domain.

²⁵ 72. (Amended) An apparatus for use in carrying out a binding assay comprising a cell, said cell comprising:

(a) one or more solid phase supports having one or more binding domains formed thereon and wherein said one or more solid phase supports are working electrodes;

(b) means, structurally coupled to said one or more solid phase supports or to said cell, for sonicating contents of said cell; and

(c) one or more counter electrodes, wherein said one or more working electrodes and said one or more counter electrodes cooperate to conduct electrochemiluminescence assays.

³⁶ 74. (Amended) An apparatus for use in carrying out a binding assay comprising a cell, said cell comprising:

(a) one or more solid phase supports having one or more binding domains formed thereon; and

(b) means, structurally coupled to said one or more solid phase supports or to said cell, for sonicating contents of said cell, wherein said one or more solid-phase supports comprise a carbon-containing polymer composite.

³⁷ 75. (Amended) An apparatus for use in carrying out a binding assay comprising a cell, said cell comprising:

(a) one or more solid phase supports having one or more binding domains formed thereon; and

(b) means, structurally coupled to said one or more solid phase supports or to said cell, for sonicating contents of said cell,

wherein said one or more solid-phase supports comprise fibril-polymer composites.

¹³ 76. (Amended) An apparatus as recited in claims ¹47, ⁸48 or ¹⁰50, said cell further including thin capillaries, wherein operation of said sonication device increases the rate of fluid flow through said thin capillaries.

¹⁶ 78. (Amended) An apparatus as recited in claim ²⁵72, said cell further including thin capillaries, wherein operation of said sonication means increases the rate of fluid flow through said thin capillaries.

³⁸ 80. (Amended) An apparatus for use in carrying out a binding assay, comprising:

(a) a cell;

(b) a sonication device, structurally coupled to said cell, for sonicating contents of said cell; and

(c) one or more solid phase supports, said supports having one or more binding domains formed thereon, wherein said cell comprises a plurality of wells.

³⁹ 81. (Amended) An apparatus for use in carrying out a binding assay, comprising:

(a) a cell;

(b) a sonication device, structurally coupled to said cell, for sonicating contents of said cell; and

(c) one or more solid phase supports, said supports having one or more binding domains formed thereon,
wherein said cell comprises a well plate.

⁴⁰ ~~82~~. (Amended) An apparatus for use in carrying out a binding assay, comprising:

^{D₈} (a) a cell;
(b) a sonication device, structurally coupled to said cell, for sonicating contents of said cell; and
(c) one or more solid phase supports, said supports having one or more binding domains formed thereon,
wherein said cell comprises a 96 well plate or a 384 well plate.

¹⁴ ~~83~~. (Amended) The apparatus according to claims ¹ ~~47~~, ⁸ ~~48~~ or ¹⁰ ~~50~~, further comprising a light detector for detecting luminescence from said cell.

^{D₉} ¹⁵ ~~85~~. (Amended) An apparatus as recited in claims ¹ ~~47~~, ⁸ ~~48~~ or ¹⁰ ~~50~~, wherein said binding reagents are selected from the group consisting of antibodies, antibody fragments, enzymes, nucleic acids and receptors.

^{D₁₀} ¹⁶ ~~91~~. (Amended) An apparatus as recited in claims ¹ ~~47~~, ⁸ ~~48~~ or ¹⁰ ~~50~~, wherein said apparatus is adapted to ^{detects} ~~detect~~ specific binding reactions within said cell.

^{D₁₁} ²⁷ ~~93~~. (Amended) An apparatus as recited in claim ²⁵ ~~72~~, wherein said apparatus is adapted to ^{detects} ~~detect~~ specific binding reactions within said cell.

Please add the following new claims:

²⁸
~~94~~. (New) An apparatus as recited in claim ²⁵~~72~~, wherein said sonication means is a piezoelectric device.

²⁵
²⁹ ~~95~~. (New) An apparatus as recited in claim ~~72~~, wherein said sonication means is an electromagnetic actuator.

¹
⁵ ~~96~~. (New) An apparatus as recited in claim ~~47~~, wherein said one or more electrodes comprise a carbon-containing polymer composite.

¹
⁶ ~~97~~. (New) An apparatus as recited in claim ~~47~~, wherein said one or more electrodes comprise fibril-polymer composites.

²⁵
³⁰ ~~98~~. (New) An apparatus as recited in claim ~~72~~, wherein said binding domains include binding reagents selected from the group consisting of antibodies, antibody fragments, enzymes, nucleic acids and receptors.

^{1 8 10}
¹⁷ ~~99~~. (New) An apparatus as recited in claims ~~47~~, ~~48~~ or ~~50~~, wherein said sonication device is capable of providing sonication energy at from 0.1 to 10,000 kHz.

^{1 8 10}
¹⁸ ~~100~~. (New) An apparatus as recited in claims ~~47~~, ~~48~~ or ~~50~~, wherein said sonication device has a power of from 0.001 to 10 watts.

¹
⁷ ~~101~~. (New) An apparatus as recited in claim ~~47~~, wherein said one or more electrodes are working electrodes and said cell further comprises one or more counter electrodes that cooperate with said one or more working electrodes to conduct electrochemiluminescence assays.

²⁵
³¹ ~~102~~. (New) An apparatus as recited in claim ~~72~~, wherein said sonication means is capable of providing sonication energy at from 0.1 to 10,000 kHz.

²⁵
³² ~~103~~. (New) An apparatus as recited in claim ~~72~~, wherein said sonication means has a power of from 0.001 to 10 watts.

¹⁹ ~~104~~. (New) An apparatus as recited in claims ~~47~~¹, ~~48~~⁸, ~~50~~¹⁰ or ~~69~~^{or}, wherein said apparatus is portable.

⁹ ~~105~~. (New) An apparatus as recited in claim ~~48~~⁸, wherein said one or more solid phase supports is structurally coupled, through a surface of said cell, to said sonication device for sonicating the contents of said cell.

²⁰ ~~106~~. (New) An apparatus as recited in claim ~~47~~¹, ~~48~~⁸ or ~~50~~¹⁰, wherein said sonication device is an electromagnetic actuator.

³³ ~~107~~. (New) An apparatus as recited in claim ~~72~~²⁵, further comprising a light detector for detecting or measuring luminescence emitted within said cell.

³⁴ ~~108~~. (New) An apparatus as recited in claim ~~72~~²⁵, wherein said one or more solid-phase supports comprise a carbon-containing polymer composite.

³⁵ ~~109~~. (New) An apparatus as recited in claim ~~72~~²⁵, wherein said one or more solid-phase supports comprise fibril-polymer composites.

²¹ ~~110~~. (New) An apparatus as recited in claims ~~47~~¹, ~~48~~⁸ or ~~50~~¹⁰, wherein said cell comprises a plurality of wells.

²² ~~111~~. (New) An apparatus as recited in claims ~~47~~¹, ~~48~~⁸ or ~~50~~¹⁰, wherein said cell comprises a well plate.

²³ ~~112~~. (New) An apparatus as recited in claims ~~47~~¹, ~~48~~⁸ or ~~50~~¹⁰, wherein said cell comprises a 96 well plate or a 384 well plate.--